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Seven Fallacies Concerning Milton Friedman's "The Role of Monetary Policy"

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Abstract

This paper analyzes Milton Friedman's (1968) article "The Role of Monetary Policy," via a discussion of seven fallacies concerning the article. These fallacies are: (1) "The Role of Monetary Policy" was Friedman's first public statement of the natural rate hypothesis. (2) The Friedman-Phelps Phillips curve was already presented in Samuelson and Solow's (1960) analysis. (3) Friedman's specification of the Phillips curve was based on perfect competition and no nominal rigidities. (4) Friedman's (1968) account of monetary policy in the Great Depression contradicted the *Monetary History's* version. (5) Friedman (1968) stated that a monetary expansion will keep the unemployment rate and the real interest rate below their natural rates for two decades. (6) The zero lower bound on nominal interest rates invalidates the natural rate hypothesis. (7) Friedman's (1968) treatment of an interest-rate peg was refuted by the rational expectations revolution. The discussion lays out the reasons why each of these seven items is a fallacy and infers key aspects of the framework underlying Friedman's (1968) analysis.

Key Words: Milton Friedman, Phillips curve, natural rate hypothesis, price stickiness, zero lower bound, Fisher effect, liquidity effect.

JEL Classification Numbers: E31, E43, E52.

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1. Introduction

The year 2018 sees the fiftieth anniversary of the publication of Milton Friedman’s article “The Role of Monetary Policy” (Friedman, 1968). This paper is well known for its articulation of the natural rate hypothesis, which provided the basis for a challenge to the notion of a long-run tradeoff between inflation and unemployment. Friedman (1968) was described by Tobin (1981, p. 40) as “seminal and influential.” In the years since Tobin wrote those words, his description of Friedman’s article has remained valid. This is confirmed by the prominence given to Friedman (1968) in the narratives regarding monetary policy strategy in Goodhart (1992) and Bernanke, Laubach, Mishkin, and Posen (1999) and in the accounts of developments in monetary analysis in Svensson (2008) and Nelson and Schwartz (2008), as well as by the recent retrospectives on Friedman’s paper by Mankiw and Reis (2017) and Hall and Sargent (2017). In addition, Christiano, Eichenbaum, and Trabandt (2017, p. 5) have pointed to the framework of Friedman (1968) as an antecedent of modern dynamic stochastic general equilibrium models.

This is not the place for a further detailed assessment of the impact of Friedman’s paper on the modern practice of monetary policy. But it is clear that, although the specific policy recommendation—monetary aggregate targeting—made by Friedman (1968) was not enduringly influential on policymaking, there has been widespread and lasting acceptance of the paper’s position that monetary policy can achieve a long-run target for inflation but not a target for the level of output (or for other real variables). For example, in the United States, the Federal Open Market Committee’s (2017) “Statement on Longer-Run Goals and Policy Strategy” included the observations that the “inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation,” and that, in contrast, the “maximum level of employment is largely determined by nonmonetary factors,” so “it would not be appropriate to specify a fixed goal for employment.”

Therefore, among monetary specialists in both the research and policy spheres, some aspects of Friedman’s (1968) analysis are well understood and have formed part of their modern consensus. However, a number of misconceptions or fallacies have also emerged concerning the content and implications of the article. Seven of the more prevalent and substantive fallacies are considered below, together with an account of why, in the author’s view, each is fallacious.¹ After a capsule

¹ In settling on what fallacies to discuss here, the concern was on misconceptions appearing in analyses of Friedman (1968) by economists working in Friedman’s own fields of monetary economics and macroeconomics—as distinct from discussions of Friedman (1968) by analysts in fields outside monetary economics (such as abstract general equilibrium theory or the history of economic thought).

summary of Friedman (1968) in Section 2, Section 3 gives the analysis of the fallacies, and Section 4 draws conclusions from the analysis.

2. A brief recapitulation of “The Role of Monetary Policy”²

Friedman (1968, p. 1) opened his article endorsing the “wide agreement” on the goals of economic policy: high employment, stable prices, and economic growth. His concern was with the status of monetary policy in achieving these goals. Monetary policy, he stressed, was far more important in affecting aggregate demand than had been thought in the early postwar period, and historical research also pointed to its importance in creating the U.S. Great Depression (pp. 1–5). However, he indicated that, while unaccustomed to downplaying the importance of monetary policy, he was going to discuss “What Monetary Policy Cannot Do” (p. 5). This was the title of his Section I. The conclusion of Section I (p. 11) was that the central bank “cannot use its control over nominal quantities to peg a real quantity—the real rate of interest, the rate of unemployment, the level of real national income, the real quantity of money” (p. 11). This conclusion stemmed from Section I’s critique both of pegging the nominal rate of interest and of attempting to generate lower unemployment via a policy that raised the inflation rate.

The latter policy strategy was based on a Phillips-curve framework. Friedman accepted that the inclusion of some kind of Phillips-curve equation in economic models was appropriate. He had expressed dissatisfaction (for example, in Friedman and Meiselman, 1963, p. 172) with first-generation Keynesian models in which the price level was fixed until full employment was reached. And he acknowledged (1968, p. 8) that “Phillips’ [1958] analysis of the relation between unemployment and wage change is deservedly celebrated as an important and original contribution.” But Friedman’s preferred way of endogenizing wages and prices differed from Phillips (1958) in casting anticipated real wage growth, rather than actual nominal wage growth, as the variable that responds to deviations of unemployment from a baseline rate (Friedman, 1968, p. 9). The upshot of this respecification was that, expressed in terms of price inflation, the Phillips curve related unanticipated inflation to unemployment, not actual inflation (p. 11). Because unanticipated inflation was transitory, unemployment would also return to its baseline rate—which Friedman defined as the “natural rate of unemployment”—the rate that would prevail in an economy that had market imperfections but no inertia in the adjustment of nominal prices and wages to monetary forces (p. 9). According to this argument, even policies that

² This capsule review brings out the main themes of Friedman’s paper, which are further explored in Section 3. It is not a substitute for reading the Friedman (1968) paper or for the other retrospectives cited elsewhere in this paper.

permanently altered the inflation rate could not permanently move the unemployment rate away from its natural rate.³ The version of the Phillips curve implied by this perspective, together with Friedman's tracing of the baseline unemployment rate to an economy that was free of nominal stickiness, made up the natural rate hypothesis.

The analysis of Section I led to Friedman's Section II, "What Monetary Policy Can Do" and his Section III, "How Should Monetary Policy Be Conducted?" In Section I, Friedman had rejected policies that were concerned directly with keeping either the unemployment rate or the real interest rate at its corresponding natural rate, on the grounds that the natural rates were too difficult to measure (p. 10). In Sections II and III, Friedman also eschewed a strategy of keeping the price level on a specified course, citing as an obstacle the lags between monetary policy actions and price-level movements (p. 15). Instead, he reaffirmed his support for a policy of constant monetary growth, which he believed was the most practicable way of achieving the ultimate objectives of policy given above (pp. 16–17).

It is in the specifics of his policy prescription that modern policy frameworks most part company with Friedman (1968). As discussed in the introduction, these frameworks have absorbed the natural rate hypothesis. But it has become standard for monetary policy strategies to seek an inflation objective directly, in conjunction with stabilization of real variables around baseline values. In particular, with regard to the real-stabilization part of its strategy, the Federal Open Market Committee (2017) noted that its policy "must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain..."⁴

3. The seven fallacies concerning Friedman (1968)

This section lays out and scrutinizes the seven fallacies concerning Friedman's "The Role of Monetary Policy" that are the focus of this paper. It deserves emphasis that, in what follows, the statements given in bold are the *fallacies*: that is, they are statements that the present author believes to be *incorrect*. The text that follows each statement explains why the statement is a fallacy.

³ The natural rate hypothesis is therefore a property of an economic model as a whole, even though the proposal by Friedman (1968) and Phelps (1967) that delivered this property concerned a single equation in, or perhaps a block of, the model (i.e., the equation or block that pertained to wage- and price-setting).

⁴ A leading procedure for revising assessments of the natural values of real variables is that of Laubach and Williams (2003). In recent years, this paper and its estimation procedure have been frequently cited in speeches by members of monetary policy committees.

Fallacy 1: “The Role of Monetary Policy” was Friedman’s first public statement of the natural rate hypothesis

Mankiw and Reis (2017, pp. 2, 5) take Friedman as entering the Phillips-curve debate in December 1967 with the address that was published as Friedman (1968) and as voicing therein a position (the natural rate hypothesis) that economists had not previously heard from him. This view, which is a frequently-stated one, is a fallacy. Certainly, Friedman (1968) was his most extended articulation of the ideas (i) that an expansionary monetary policy that tended to raise the inflation rate would not permanently lower the unemployment rate, and (ii) that full employment and price stability were compatible objectives over long periods. But Friedman had outlined the same ideas in his writings and in other public outlets on several earlier occasions in the 1950s and 1960s.

Specifically, by the early 1950s Friedman believed that price stability and full employment were compatible in the long run. Notable forums in which he articulated this view included Congressional testimony and submissions over the course of the 1950s, as well as public exchanges that Friedman had with Paul Samuelson in 1950 and 1962.⁵

However, the most extended pre-1967 discussion by Friedman of his views on the Phillips curve, including his use of “natural rate of unemployment” terminology, was in a conference comment that was both delivered and published in 1966. It was this discussion that led Gordon (1976, p. 191) to proclaim that “Friedman was the first clearly to state that ‘there is no long-run, stable trade-off between inflation and unemployment’ (1966, p. 60)...” Nonetheless, the notion that Friedman did not articulate the natural rate hypothesis until his 1968 article remained pervasive, and the continued prevalence of this fallacious notion prompted McCallum (1989, p. 181) to put strong emphasis on the Friedman (1966) paper.

The natural rate hypothesis thus underlay Friedman’s analytical framework for many years prior to 1968. Not surprisingly, therefore, the hypothesis has connections to other long-running themes in his overall analytical framework. Two of these themes—the presence of short-run nominal rigidity, and the existence of multiple channels through which monetary policy affects aggregate demand—are discussed later in this paper. The hypothesis was also a generalization of another theme that Friedman stressed: long-run monetary neutrality. It is in this respect that

⁵ See Nelson (2009, 2017) for extensive documentation and analysis of these points.

the natural rate hypothesis especially differed from the perspective of Samuelson and Solow (1960), as will now be detailed.

Fallacy 2: The Friedman-Phelps Phillips curve was already presented in Samuelson and Solow's (1960) analysis

A key article on the Phillips curve that is often juxtaposed with Friedman (1968) is Samuelson and Solow (1960). This paper is often (and correctly, in the present author's view) characterized as advocating the position that there is a permanent tradeoff between the unemployment rate and inflation in the United States. However, a passage in Samuelson and Solow (1960, p. 193) has often been highlighted to suggest that the no-long-run-tradeoff position of Phelps (1967) and Friedman (1966, 1968) was already laid out in their analysis. Early references to this passage include that in Desai (1984). But it has also recently been cited by Hall and Sargent (2017, p. 2) and by Mankiw and Reis (2017, p. 4). Indeed, Mankiw and Reis describe Samuelson and Solow as having “anticipated what would later be known as the expectation-augmented Phillips curve.” More categorical statements have been made by DeLong (2013), who contended that “there is nothing theoretically in Friedman [1968] that is not in Samuelson and Solow (1960)” and by Fischer (1994, pp. 266–267), who argued that the Samuelson-Solow exposition outlined the hypothesis that was “central to subsequent discussions... as the expectations-augmented Phillips curve.”

However, in a more extended discussion of Samuelson and Solow (1960), Fischer (1987) acknowledged that Samuelson and Solow did *not* indicate that the long-run Phillips curve was vertical. To verify that they did not do so, it is worth considering the Samuelson and Solow (1960) passage in question. This passage considered a scenario in which restrictive measures against aggregate demand “so act upon wage and other expectations as to shift the curve downward in the longer run...” Note that the reference to the curve shifting “downward” likely means that the curve is *not* vertical in the longer run. Indeed, that word alone suggests that the Samuelson-Solow vision of the Phillips curve was one that did not imply the long-run-vertical curve of Friedman and Phelps.

So Samuelson and Solow (1960) did not anticipate the natural rate hypothesis, contrary to what might be inferred from several of the discussions cited above. The fact that they did not do so is underscored by noting the following: augmenting a Phillips-curve equation with an expectations term does *not*, in itself, produce the Friedman-Phelps Phillips-curve specification. A *further* requirement for obtaining that specification is *the way* the Phillips curve is augmented: that is,

the specific coefficient attached to expected inflation in the Phillips-curve equation. The Friedman-Phelps argument implies that the expectations term has a unit coefficient—a parametric restriction indicated in Friedman (1968, p. 9) and stressed in Dornbusch and Fischer’s (1978, pp. 473–474) exposition of the Friedman-Phelps modification to the Phillips curve.

The pervasiveness during the 1960s of the belief that inflation would generate permanent real gains is underlined by statements of two of Friedman’s University of Chicago colleagues. In 1962, Harry Johnson referred to “what I regard as a by now rather heretical and outdated opinion that the problem of inflation is a very serious one,” adding that “if anything, we are too averse to inflation” (in Joint Economic Committee, 1963, p. 220). In 1965, Albert Rees wrote: “If we should get closer yet to full employment and remain there, I believe that some upward price creep will inevitably occur... But this will be a small price to pay...” (Rees, 1965, p. 378).⁶

At most, then, Samuelson and Solow (1960) suggested that the appropriate specification in describing inflation behavior was $\pi = -\alpha(u - u^*) + b\pi^e + e$, where π is goods-price inflation, u is the unemployment rate, u^* is the full-employment (natural) unemployment rate, $\alpha > 0$, π^e is the expected inflation rate, and e is an exogenous disturbance term. Samuelson and Solow did not set $b = 1$ or provide theoretical grounds (as Friedman and Phelps would) for believing that the restriction that $b = 1$ was appropriate.⁷ In fact, Solow’s late-1960s and early-1970s work (for example, Solow, 1969, 1970) was explicit in advancing the contrary proposition that $b < 1$.

The natural rate hypothesis insists that $b = 1$ —a setting that, as stressed in McCallum (1987), amounts to a generalization, to a dynamic context, of the notion of absence of money illusion (monetary neutrality).

Fallacy 3: Friedman’s specification of the Phillips curve was based on perfect competition and no nominal rigidities

Modigliani (1977, p. 4) said of Friedman (1968) that “[i]ts basic message was that, despite appearances, wages were in reality perfectly flexible.” However, Friedman (1977, p. 13) took exception to this interpretation of his 1968 paper. Friedman pointed out that the definition of the natural rate of unemployment that he gave in 1968 had recognized the existence of imperfectly

⁶ See also King’s (2008, pp. 325–327) discussion of the presence of a long-run nonvertical Phillips curve in U.S. macroeconomic models in the late 1960s and early 1970s.

⁷ Another difference between the Samuelson-Solow and Friedman positions, as stressed in Nelson (2017, Chapters 10 and 13), was that Friedman believed that the exogenous Phillips-curve disturbance term e had a zero mean.

competitive elements in the setting of wages, including those arising from regulation of labor markets. Further support for Friedman's contention that he had not assumed a perfectly competitive labor market is given by the material in his 1968 paper that noted the slow adjustment of nominal wages to demand and supply pressures. For example, Friedman (1968, p. 10) indicated that the paper's model was one in which "prices and wages have been set for some time in the future" and wages adjust more slowly to market conditions than do goods prices. Indeed, the notion that nominal wages adjust more slowly than goods prices underlay Friedman's position that *ex post* real wages fall in the initial phase of a shift to higher inflation. Wage stickiness is, consequently, essential to the dynamics of the short-run Phillips curve in Friedman (1968)—a point stressed by Tavlas (1997, p. 166).

Might it be, however, that Friedman's (1968) analysis, while allowing for gradual nominal wage adjustment, implicitly treated *goods prices* as perfectly flexible (notwithstanding the quotation just given)? Modigliani (1977, p. 6) evidently thought so, referring to "Friedman's modeling of the commodity market as a perfectly competitive one." This was also the interpretation taken by Laidler (1990, pp. 52, 55), who suggested that Friedman's (1968, p. 10) observation that, in his model, "it is the "fall *ex post* in real wages... [that] enabled employment to increase" is inconsistent with a postulate of price stickiness. More specifically, Laidler (1990, p. 55) argued that a framework in which output and employment move "in response to... money-price changes"—as they do in the Friedman (1968) passage quoted—is inconsistent with prices being a choice variable for firms. And the postulate of sticky prices basically requires that prices be firms' choice variable. It would seem that both Laidler and Modigliani believed that Friedman took the goods market to be perfectly competitive and, therefore, he treated all goods prices as fully flexible; the basis for their belief was that they regarded Friedman's position that a lower real wage stimulates output as inconsistent with an environment of price stickiness.⁸

But it is perfectly possible in dynamic sticky-price models for the following two elements to coexist: (i) the aggregate price level adjusts only gradually in response to monetary policy and other developments; (ii) equilibrium outcomes for aggregate output and employment stem from the relative-price signals given to firms, with these signals in turn implied by the overall constellation of nominal prices (in relation to costs). This combination—which implies that goods prices are, in total, not perfectly flexible in the short run, yet the short-run pattern of

⁸ Laidler (1990) acknowledged the passages in Friedman (1968) that pointed to nominal rigidities but took these as implying an inconsistency in Friedman's exposition. On the alternative interpretation developed below, however, the whole of Friedman (1968), including its reference to the production incentives generated by movements in real wages, is consistent with the presence of both price and wage stickiness.

relative prices (including the position of goods prices in relation to factor costs) matters for the observed behavior of real quantities—holds in many New Keynesian models.⁹ The combination also recurred in Friedman’s own writings about price and output determination. For example, the case for floating exchange rates that Friedman published in 1953 rested on *both* the position that the prices of goods produced by an open economy adjust only gradually *and* the notion that production decisions in that economy are spurred by price signals (see Friedman, 1953, pp. 165, 201). The same is true of Friedman’s 1968 framework. Consequently, that framework is consistent with prices being endogenous—both responding to, and serving as an impetus for, output movements—and the overall price level *not* being fully flexible in the short run.

Fallacy 4: Friedman’s (1968) account of monetary policy in the Great Depression contradicted the *Monetary History*’s version

Much of Friedman’s (1968) discussion in his Sections II and III was predicated on the notion that monetary policy actions could be counted on to affect real and nominal aggregate demand. This notion would be undermined if monetary policy developments were not important for understanding large fluctuations in aggregate demand or if monetary policy was unable to offset such fluctuations. For this reason, Friedman’s (1968) account of the Great Depression, and the consistency of that account with the *Monetary History*’s narrative, are important.

Both Kaldor (1970) and Krugman (2007) argued that Friedman’s (1968) account of U.S. monetary policy in the Great Depression ascribed a role to the Federal Reserve System in generating the decline in the (M2) money stock (currency plus commercial bank deposits) that was not present in Friedman and Schwartz’s (1963, Chapter 7) narrative of “The Great Contraction.” Both critics focused on the following passage from Friedman (1968, p. 3): “the U.S. monetary authorities followed highly deflationary policies. The quantity of money... fell because the Federal Reserve System forced or permitted a sharp reduction in the monetary base, because it failed to exercise the responsibilities assigned to it in the Federal Reserve Act to provide liquidity to the banking system.” Kaldor and Krugman both argued that Friedman’s statement citing “a sharp reduction in the monetary base” was at variance with the actual rise in the U.S. monetary base (currency plus commercial bank reserves) from 1930 to 1933.

But, as stressed by Nelson and Schwartz (2008), the monetary base did decline in the 1928–1930 period—see Table 1—and this decline was covered in Friedman and Schwartz (1963).

⁹ See, for example, Rotemberg (1982), Sbordone (2002, p. 271), and Woodford (2003).

Table 1. The monetary base, commercial bank reserves, and M2 at selected dates, 1928–1933			
Date	Monetary base	Commercial bank reserves	M2
April 1928	7.211	3.333	46.548
October 1930	6.817	3.223	45.054
April 1933	8.074	2.872	29.747

Source: Friedman and Schwartz (1963, pp. 712–714, 739–740, 803–804). Units are billions of dollars.

One could argue about the importance of this decline in the base for the generation of the overall fall in the stock of M2 from 1929 to 1933. It was one of several factors likely making for contraction of M2, including commercial banks’ behavior, the nonbank private sector’s actions, and the Federal Reserve’s responses to the situation (notably its failure, referred to by Friedman, to provide commercial banks with adequate liquidity—a failure shown in Table 1 in the decline in bank reserves from 1930 to 1933). But the fact of a sharp decline in the monetary base during the prelude to, and early stages of, the 1929–1933 Great Contraction is not in dispute, and it is this decline to which Friedman (1968) was presumably referring.¹⁰

Fallacy 5: Friedman (1968) stated that a monetary expansion will keep the unemployment rate and the real interest rate below their natural rates for two decades

Some readers of Friedman (1968) have taken him as implying that, starting from high inflation, a monetary policy tightening that ultimately delivers price stability will be associated with two decades in which the unemployment rate continuously exceeds its natural rate, and two decades of real (short-term) interest rates continuously standing above their natural rates.¹¹ For example, with regard to unemployment, Hines (1972) stated: “The question is how long in calendar time must the levels of unemployment induced by the monetary squeeze persist...? ... Professor Friedman has attempted a partial answer. ... [Friedman (1968)] reckons that the adjustment time is of the order of 20 years.” With regard to the real interest rate, Borio, Disyatat, Juselius, and

¹⁰ Krugman (2007) further contended that Friedman’s (1968) account was one in a sequence of statements he made in the late 1960s and 1970s that distorted the *Monetary History*’s account of the Depression. This sequence culminated, Krugman suggests, in Friedman’s (1976) statement that the Depression was “produced by government mismanagement.” But in fact, far from being a latter-day revision of his account of the Depression, the quoted Friedman (1976) statement was essentially identical to one that appeared in Friedman (1962, p. 38).

¹¹ As will be seen, these readers have also taken Friedman (1968) as making the converse prediction in the case of a permanent monetary policy easing.

Rungcharoenkitkul (2017, p. 21) have suggested that “when translating the analytical notion of ‘long run’ into calendar time, Friedman (1968) noted that it could be as long as two decades.”

Both these statements are inferences from the following passage in Friedman (1968, p. 11): “But how long, you will say, is ‘temporary’? ... I can at most venture a personal judgment, based on some examination of the historical evidence, that the initial effects of a higher and unanticipated rate of inflation last for something like two to five years; that this initial effect then begins to be reversed; and that a full adjustment to the new rate of inflation takes about as long for employment as for interest rates, say, a couple of decades.”

The passage of Friedman (1968) just quoted does not, in fact, imply that a policy involving a shift to a new inflation rate involves twenty years of one-sided unemployment and real-interest-rate gaps. Such prolonged gaps instead fall under the heading of Friedman’s “initial effects” of the monetary policy change—effects that he explicitly associated with a two-to-five-year period, with the gaps receding beyond this period.¹² Friedman described “full adjustment” as comprising decades, but such complete adjustment includes the lingering dynamics beyond the main dynamics associated with the initial two-to-five year period. It is the two-to-five year period that would be associated with the bulk of the nonneutrality of the monetary policy change.

It should not be surprising that “full adjustment,” that is, the return of all real variables to their steady-state values—and, in the case of nominal variables, convergence to their new steady-state values—would be described as taking decades. It is worth recalling that, in dynamic macroeconomic models in which lagged endogenous variables are part of the state vector, “full adjustment” to many key shocks takes an *infinite* number of periods—although, in many of these models, most of the dynamics beyond the initial years after the shock are trivial.

In a 1972 piece, Friedman clarified that his 1968 article had indeed not implied that removing inflation would take twenty years of above-normal unemployment.¹³ Friedman (1972) wrote that “full adjustment” referred to achievement of steady-state conditions. He noted: “The important point is that while the ‘full’ adjustment may well last several decades, the period of unusually high unemployment is far shorter, more like two to five years.”¹⁴

¹² The Friedman (1968) passage could be interpreted as saying either that the unemployment gap is largely *closed* by the end of the two-to-five-year period, or that it has merely *peaked* (in absolute value) by the end of that period (although neither interpretation implies that the gap lasts twenty years). Friedman’s (1972) clarification, discussed presently, suggests the former interpretation.

¹³ Friedman’s (1972) clarification was rarely noted in the research literature (an exception is Nelson, 2009, p. 77).

¹⁴ Friedman reaffirmed this judgment regarding timing in Friedman (1978).

Fallacy 6: The zero lower bound on nominal interest rates invalidates the natural rate hypothesis

DeLong (2013) stated that “the vertical long-run Phillips curve of Friedman (and Phelps) is simply wrong at low rates of inflation, and so not helpful as a fundamental tool.” DeLong evidently was referring to the phenomenon of the zero (or effective) lower bound on short-term nominal interest rates, under conditions of a negative output gap and low inflation. According to this argument, once the zero bound is reached, monetary policy’s ability to stimulate spending is gone. Furthermore, a negative output gap would tend to generate continued low values of, or declines in, inflation and expected inflation—a development that might compound the problem of deficient aggregate demand. On this reasoning, a negative output gap (and corresponding high rates of unemployment) would persistently coexist with low inflation rates—violating the proposition that there is no long-run relationship between unemployment and inflation.

A zero-bound situation undoubtedly makes the analysis of monetary policy more difficult. In addition, the central bank in a zero-bound situation has fewer tools that it can deploy to stimulate aggregate demand than it has in other circumstances. But, important as these complications are, neither of them implies that the *long-run* Phillips curve is not vertical.

DeLong’s contention rests on the notion that, once the monetary authorities have exhausted their scope to lower the short-term nominal policy interest rate (or perhaps the expected path of this rate), monetary policy is unable to stimulate aggregate demand. This notion was rejected in the past decade by a number of the world’s monetary policy committees, who took the view that quantitative-easing measures could, for a given path of the short-term nominal policy rate, stimulate asset prices and total spending. It was also a notion Friedman vehemently rejected. He held that, at low short-term interest rates, monetary policy measures that bolstered the M2 money stock would tend to support asset prices and aggregate demand.¹⁵ Provided that monetary policy is able to boost aggregate demand for a given path of the short-term nominal interest rate, the reasoning used by DeLong in support of a long-run-nonvertical Phillips curve is invalid.

¹⁵ Friedman (1968, pp. 3, 7) articulated this view clearly with regard to the situation facing the United States in the early 1930s. Hall and Taylor (1997, pp. 414–415) gave support to the idea that, once short-term interest rates have reached near-zero values, policy measures that sought to boost M2 growth could exert a stimulative effect on the economy.

Fallacy 7: Friedman’s (1968) treatment of an interest-rate peg was refuted by the rational expectations revolution

Friedman (1968, p. 5) stated that monetary policy did not possess the ability to “peg”—that is, fix at a constant value irrespective of the state of the economy—market interest rates, except for “very limited periods.” Although some retrospectives (for example, Hall and Sargent, 2017, p. 2) have treated Friedman as being vindicated in this assessment, others have suggested that Friedman’s (1968) claims regarding interest-rate pegging have been invalidated by monetary policy analysis using rational expectations. On the basis of a flexible-price, rational expectations model, McCallum (1986, p. 154) argued that Friedman’s judgment on pegging was “incorrect.” More recently, using a sticky-price optimizing model, Cochrane (2017, p. 12) has stated: “The new-Keynesian model thus reverses the hallowed doctrine—the first item in the Friedman (1968) list of what monetary policy cannot do...” (that is, that it cannot durably peg interest rates).

It will be argued here that these results do not actually overturn Friedman’s (1968) claims concerning the feasibility of pegging. The reasons are twofold.

First, the Fisher equation $R_t = r_t + E_t\pi_{t+1}$ implies that—despite the differences between the models that they used—the results presented by McCallum and Cochrane have a common feature. They both treat the central bank as able to move expected next-period inflation, $E_t\pi_{t+1}$, by amounts just sufficient to offset the influence of variations in the short-term real interest rate r_t on the short-term nominal interest rate R_t . That is how the policy succeeds in making R_t constant for all t .¹⁶ Clearly, this policy requires that central banks are able to treat the one-period-ahead expected rate of inflation as a choice variable in the current period, with monetary policy actions today having reliable and precise effects on that short-horizon expectation. Although the monetary authority in flexible-price models and in many New Keynesian models does possess this ability, it is unlikely that central banks in practice regard themselves as able to manipulate next-quarter expected inflation reliably via their actions today. For his part, Friedman (1968, pp. 6, 14) was explicit in suggesting that lags between monetary policy actions and inflation meant that central banks were able to influence the expected-inflation component of short-term interest rates *only with a decided delay*. This implied that the Fisher effect did not provide a means of

¹⁶ Khan, King and Wolman (2003, p. 826) stressed that a policy of this kind must underlie a sustainable peg of the nominal interest-rate.

short-run control of short-term interest rates, even though it did constitute the main means by which central banks influenced short-term interest rates over periods of years or decades.¹⁷

Second, even if central banks could control short-term expected inflation reliably, that would not invalidate Friedman's (1968) critique of pegging, because that critique referred specifically to policies that attempted to peg interest rates using a continuously expansionary monetary policy. In effect, Friedman's critique of nominal-rate pegs amounted to a questioning of policies that tried to control interest rates by influencing the real-rate component of nominal rates via the liquidity effect of measures, such as open market purchases, that boosted the money stock.¹⁸ That is, he believed that the central bank could not sustain a nominal-rate peg by attempting to set the real interest rate at an arbitrary level, because such an attempt involved using the liquidity effect—which, Friedman stressed in his 1968 paper, was an effect that wears off over time. The propositions that the liquidity effect fades over time and that real interest rates cannot be targeted in the long run by the central bank remain widely accepted today.¹⁹ These valid propositions underpinned Friedman's critique of pegging of nominal interest rates.²⁰

4. Conclusions

The preceding analysis of the seven fallacies concerning Milton Friedman's 1968 article suggests two main conclusions about "The Role of Monetary Policy."

The first conclusion is that the analysis of Friedman (1968) was consistent with the broader framework he elucidated in other writings. The discussion of Fallacies 1 and 2 has indicated that the natural rate hypothesis underlay Friedman's monetary policy analysis for many years, with

¹⁷ Friedman granted—indeed, his 1968 paper emphasized—that a monetary policy that produced stable, low inflation would ultimately deliver stable, low nominal interest rates via the Fisher effect (Friedman, 1968, pp. 6–7).

¹⁸ Friedman (1977, p. 13) stressed this aspect of his 1968 discussion.

¹⁹ Woodford (1994) suggested that a central bank could sustain a nominal interest-rate peg by using the liquidity effect to peg nominal interest rates in the short run, and then using the Fisher effect to deliver the same interest-rate value over long periods. Such a scenario does not contradict Friedman's (1968) critique, as the latter pertained to policies that relied indefinitely on the liquidity effect as a means of controlling interest rates.

²⁰ A separate argument for supposing that Friedman's (1968) discussion of interest-rate pegs no longer holds under rational expectations is based not on his critique of the *feasibility* of his pegs but on his prediction of their *consequences*. Specifically, Friedman's prediction that a peg would give rise to ever-increasing inflation has been said to rest crucially on the assumption of adaptive expectations (see, for example, Cochrane, 2017, p. 105). However, this too is doubtful because one can envision scenarios in which a peg generated ever-rising inflation under rational expectations: for example, if the central bank attempted to maintain a fixed nominal interest rate using expansionary monetary policy during a period in which the natural real interest rate was rising. See Dornbusch and Fischer (1978, p. 517) for a related discussion, which endorsed Friedman's (1968) prediction without specifically tying it to an assumption of adaptive expectations. It is also noteworthy that García-Schmidt and Woodford (2015) have found cases in which a nominal-interest-rate peg gives rise to unstable dynamics in a forward-looking model.

Friedman (1968) elaborating upon his longstanding critique of the notion of a long-run unemployment/inflation tradeoff; furthermore, this critique involved a setting of the Phillips curve not contemplated by Samuelson and Solow (1960). The analysis of Fallacies 3 and 4 has shown that Friedman (1968) affirmed his preexisting beliefs in price stickiness and in the monetary origins of the Depression, rather than marking a change in position.

The second conclusion is that the analysis of these fallacies has underlined the importance of the headings “What Monetary Policy Cannot Do” and “What Monetary Policy Can Do” in Friedman’s talk. The research that has challenged Friedman’s critique of interest-rate pegging relies on a monetary policy power—the ability to fine-tune movements in short-term expected inflation—that central banks likely do not possess in practice and that Friedman believed they did not have. Consequently, as discussed above in the analysis of Fallacy 7, the contention that interest-rate pegging is viable ultimately rests on something that, most likely, “monetary policy cannot do.” In contrast, Friedman certainly believed that monetary policy *could* stimulate aggregate demand when the short-term nominal interest rate was at its lower bound, notably by actions that prevented declines in the M2 money stock. This was highlighted in the discussions of Fallacies 5 and 6. As these discussions showed, Friedman’s analysis was consistent with multi-year—but not decades-long or indefinite—periods of pronounced monetary nonneutrality. On this view, monetary expansion would stimulate both components of nominal aggregate demand: output would rise in response to easier money, and inflation also would increase, reflecting the operation of the Phillips-curve equation. These were things that “monetary policy can do.” Monetary policy actions were able to produce short-run reactions of output and employment and also have an enduring effect on inflation. Provided that monetary policy has these abilities, the natural rate hypothesis continues to be valid even in the presence of the lower bound on nominal interest rates.

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